

APPENDIX E DRAFT RFHP CONSTRUCTION PERMIT

**DRAFT
PERMIT**

PERMIT NO: 07JE0277

INITIAL APPROVAL

DATE ISSUED:

**ISSUED TO: U. S. Department of Energy
 National Renewable Energy Laboratory**

THE SOURCE TO WHICH THIS PERMIT APPLIES IS DESCRIBED AND LOCATED AS FOLLOWS:

Fuel heating plant for Research and Development facility for Renewable Energy and Energy Efficiency, located at 15003 Denver West Parkway, Golden, Jefferson County, Colorado.

THE SPECIFIC EQUIPMENT OR ACTIVITY SUBJECT TO THIS PERMIT INCLUDES THE FOLLOWING:

One (1) Challenger Advanced Recycling Equipment, Model: CCUE411-W, Serial Number: to be provided, woodwaste fired boiler, heat input rated at 11,500,000 BTU per hour. This boiler is equipped with a multistage combustion system and an extended combustion chamber for minimizing emissions of Nitrogen Oxides, Carbon Monoxide, and Volatile Organic Compounds. Particulate Matter emissions are controlled by a set of cyclones (multicyclone system).

THIS PERMIT IS GRANTED SUBJECT TO ALL RULES AND REGULATIONS OF THE COLORADO AIR QUALITY CONTROL COMMISSION AND THE COLORADO AIR POLLUTION PREVENTION AND CONTROL ACT C.R.S. (25-7-101 et seq), TO THOSE GENERAL TERMS AND CONDITIONS INCLUDED IN THIS DOCUMENT AND THE FOLLOWING SPECIFIC TERMS AND CONDITIONS:

1. This permit shall expire if the owner or operator of the source for which this permit was issued: (i) does not commence construction/modification or operation of this source within 18 months after either the date of issuance of this initial approval permit or the date on which such construction or activity was scheduled to commence as set forth in the permit application associated with this permit; (ii) discontinues construction for a period of eighteen months or more; or (iii) does not complete construction within a reasonable time of the estimated completion date (See General Condition No. 6., Item 1.). Upon a showing of good cause by the permittee, the Division may grant extensions of the permit. (Reference: Regulation No. 3, Part B, Section III.F.4.)

Final Environmental Assessment of Three Site Development Projects
at the National Renewable Energy Laboratory South Table Mountain Site

Colorado Department of Public Health and Environment
Air Pollution Control Division

U. S. Department of Energy - National Renewable Energy Laboratory
Permit No. 07JE0277
Initial Approval

**DRAFT
PERMIT**

2. Within one hundred and eighty days (180) after commencement of operation, compliance with the conditions contained on this permit shall be demonstrated to the Division. It is the permittee's responsibility to self certify compliance with the conditions. Failure to demonstrate compliance within 180 days may result in revocation of the permit. (Information on how to certify compliance was mailed with the permit.)
3. The permit number shall be marked on the subject equipment for ease of identification. (Reference: Regulation No. 3, Part B, Section III.E.) (State only enforceable)
4. The manufacturer, model number and serial number of the subject equipment shall be provided to the Division within one hundred and eighty days (180) after commencement of operation. (Reference: Regulation No. 3, Part B, Section III.E.)
5. Visible emissions shall not exceed twenty percent (20%) opacity during normal operation of the source. During periods of startup, process modification, or adjustment of control equipment visible emissions shall not exceed 30% opacity for more than six minutes in any sixty consecutive minutes. Opacity shall be measured by EPA Method 9. (Reference: Regulation No. 1, Section II.A.1. & 4.)
6. This source is subject to the odor requirements of Regulation No. 2. (State only enforceable)
7. Emission control devices / systems shall be inspected, monitored, maintained / renewed, and operated as per the recommendations of the manufacturers to ensure ongoing satisfactory performance.
8. This source shall be limited to a fuel use rate as listed below and all other activities, operational rates and numbers of equipment as stated in the application. Annual records of the actual consumption rate shall be maintained by the applicant and made available to the Division for inspection upon request. (Reference: Regulation No. 3, Part B, Section II.A.4.)

Consumption of woodwaste for combustion in the boiler shall not exceed 3,900 tons per year. This is based on a High Heat Value of 5,975 BTU per pound.
9. Emissions of air pollutants shall not exceed the following limitations (as calculated in the Division's preliminary analysis): (Reference: Regulation No. 3, Part B, Section II.A.4.)

Particulate Matter:	5.1 tons per year.
PM10 (Particulate Matter<10 µm):	4.7 tons per year.
Nitrogen Oxides:	5.1 tons per year.
Carbon Monoxide:	1.4 tons per year.

Final Environmental Assessment of Three Site Development Projects
at the National Renewable Energy Laboratory South Table Mountain Site

Colorado Department of Public Health and Environment
Air Pollution Control Division

U. S. Department of Energy - National Renewable Energy Laboratory
Permit No. 07JE0277
Initial Approval

**DRAFT
PERMIT**

10. This source is subject to Regulation No. 6, Part A, Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units, including, but not limited to, the following:

§ 60.48c Reporting and recordkeeping requirements.

In addition, the following requirements of Regulation No. 6, Part A, Subpart A, General Provisions, apply.

- a. At all times, including periods of start-up, shutdown, and malfunction, the facility and control equipment shall, to the extent practicable, be maintained and operated in a manner consistent with good air pollution control practices for minimizing emissions. Determination of whether or not acceptable operating and maintenance procedures are being used will be based on information available to the Division, which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. (Reference: Regulation No. 6, Part A. General Provisions from 40 CFR 60.11)
 - b. No article, machine, equipment or process shall be used to conceal an emission that would otherwise constitute a violation of an applicable standard. Such concealment includes, but is not limited to, the use of gaseous diluents to achieve compliance with an opacity standard or with a standard that is based on the concentration of a pollutant in the gases discharged to the atmosphere. (§ 60.12)
 - c. Written notification of construction and initial startup dates shall be submitted to the Division as required under § 60.7.
 - d. Records of startups, shutdowns, and malfunctions shall be maintained, as required under § 60.7.
 - e. Performance tests shall be conducted as required under § 60.8.
11. This source is subject to Regulation No. 6, Part B, II – Standards of Performance for New Fuel-Burning Equipment, C – Standard for Particulate Matter:

Emissions of Particulate Matter shall not be in excess of the rate calculated by:

$$PE = 0.5 (FI)^{-0.26}$$

PE is allowable emissions, pound per million BTU heat input
FI is the fuel input in million BTU per hour.

Discharge into the atmosphere shall not exhibit greater than 20 % opacity.

Final Environmental Assessment of Three Site Development Projects
at the National Renewable Energy Laboratory South Table Mountain Site

Colorado Department of Public Health and Environment
Air Pollution Control Division

U. S. Department of Energy - National Renewable Energy Laboratory
Permit No. 07JE0277
Initial Approval

**DRAFT
PERMIT**

12. A Revised Air Pollutant Emission Notice (APEN) shall be filed: (Reference: Regulation No. 3, Part A, Section II.C.)

- a. Annually whenever a significant increase in emissions occurs as follows:

For any criteria pollutant:

For sources emitting **less than 100 tons per year**, a change in actual emissions of five tons per year or more, above the level reported on the last APEN submitted.

For any non-criteria reportable pollutant:

If the emissions increase by 50% or five (5) tons per year, whichever is less, above the level reported on the last APEN submitted to the Division.

- b. Whenever there is a change in the owner or operator of any facility, process, or activity; or
- c. Whenever new control equipment is installed, or whenever a different type of control equipment replaces an existing type of control equipment; or
- d. Whenever a permit limitation must be modified; or
- e. No later than 30 days before the existing APEN expires. APEN/s expires five (5) years from the date/s of submittal.

Ram N. Seetharam
Permit Review Engineer

R K Hancock III, P.E.
Construction Permits Unit Supervisor

Permit History:

Date	Action	Description
This issuance	IA	Initial Approval.

APEN Submittal Log (to be maintained further by the permittee):

APEN Submittal Date	APEN Expiry Date	Renewal APEN to be submitted by	Remarks
March 21, 2007	March 21, 2012	February 19, 2012	

Final Environmental Assessment of Three Site Development Projects
at the National Renewable Energy Laboratory South Table Mountain Site

Colorado Department of Public Health and Environment
Air Pollution Control Division

U. S. Department of Energy - National Renewable Energy Laboratory
Permit No. 07JE0277
Initial Approval

**DRAFT
PERMIT**

Notes to Permit Holder:

- 1) The fuel use rate and emission limits contained in this permit are based on those requested in the permit application. These limits may be revised upon request of the permittee providing there is no exceedance of any specific emission control regulation or any ambient air quality standard. A revised air pollution emission notice (APEN) and application form must be submitted with a request for a permit revision.
- 2) This source is subject to the Common Provisions Regulation Part II, Subpart E, Upset Conditions and Breakdowns. The permittee shall notify the Division of any upset condition which causes a violation of any emission limit or limits stated in this permit as soon as possible, but no later than two (2) hours after the start of the next working day, followed by written notice to the Division explaining the cause of the occurrence and that proper action has been or is being taken to correct the conditions causing said violation and to prevent such excess emission in the future.
- 3) This source is classified as a:
Minor Source
At a: Minor Facility
- 4) The following emissions of non-criteria reportable air pollutants are established based upon the fuel use rate indicated in this permit. This information is listed to inform the operator of the Division's analysis of the specific compounds. This information is listed on the Division's emission inventory system.

<u>C.A.S.#</u>	<u>SUBSTANCE</u>	<u>EMISSIONS [LB/YR]</u>
107-02-81	Acrolein	186
71-43-2	Benzene.....	296
50-00-0	Formaldehyde	205
7647-01-0	Hydrochloric acid	885

- 5) The emission levels contained in this permit are based on the following emission factors (pounds per million BTU heat input):

Pollutant	EmiFactor	Emission Controls	Cont.Eff. %
Particulate Matter	0.57700	Multicyclone	62.08
PM10	0.51700	Multicyclone	61.00
Nitrogen Oxides	0.49000	Multistage combustion	55.34
Carbon Monoxide	0.60000	Extended combustion	90.00
Acrolein	0.00400		
Benzene	0.00420		
Formaldehyde	0.00440		
Hydrochloric Acid	0.01900		

Final Environmental Assessment of Three Site Development Projects
at the National Renewable Energy Laboratory South Table Mountain Site

Colorado Department of Public Health and Environment
Air Pollution Control Division

U. S. Department of Energy - National Renewable Energy Laboratory
Permit No. 07JE0277
Initial Approval

**DRAFT
PERMIT**

GENERAL TERMS AND CONDITIONS: (IMPORTANT! READ ITEMS 5,6,7 AND 8)

1. This permit is issued in reliance upon the accuracy and completeness of information supplied by the applicant and is conditioned upon conduct of the activity, or construction, installation and operation of the source, in accordance with this information and with representations made by the applicant or applicant's agents. It is valid only for the equipment and operations or activity specifically identified on the permit.
2. Unless specifically stated otherwise, the general and specific conditions contained in this permit have been determined by the APCD to be necessary to assure compliance with the provisions of Section 25-7-114.5(7)(a), C.R.S.
3. Each and every condition of this permit is a material part hereof and is not severable. Any challenge to or appeal of, a condition hereof shall constitute a rejection of the entire permit and upon such occurrence, this permit shall be deemed denied *ab initio*. This permit may be revoked at any time prior to final approval by the Air Pollution Control Division (APCD) on grounds set forth in the Colorado Air Quality Control Act and regulations of the Air Quality Control Commission (AQCC), including failure to meet any express term or condition of the permit. If the Division denies a permit, conditions imposed upon a permit are contested by the applicant, or the Division revokes a permit, the applicant or owner or operator of a source may request a hearing before the AQCC for review of the Division's action.
4. This permit and any required attachments must be retained and made available for inspection upon request at the location set forth herein. With respect to a portable source that is moved to a new location, a copy of the Relocation Notice (required by law to be submitted to the APCD whenever a portable source is relocated) should be attached to this permit. The permit may be reissued to a new owner by the APCD as provided in AQCC Regulation No. 3, Part B, Section II.B. upon a request for transfer of ownership and the submittal of a revised APEN and the required fee.
5. Issuance (initial approval) of an emission permit does not provide "final" authority for this activity or operation of this source. Final approval of the permit must be secured from the APCD in writing in accordance with the provisions of 25-7-114.5(12)(a) C.R.S. and AQCC Regulation No. 3, Part B, Section III.G. Final approval cannot be granted until the operation or activity commences and has been verified by the APCD as conforming in all respects with the conditions of the permit. If the APCD so determines, it will provide written documentation of such final approval, which does constitute "final" authority to operate. ***Compliance with the permit conditions must be demonstrated within 180 days after commencement of operation.***
6. **THIS PERMIT AUTOMATICALLY EXPIRES IF** you (1) do not commence construction or operation within 18 months after either the date of issuance of this permit or the date on which such construction or activity was scheduled to commence as set forth in the permit, whichever is later; (2) discontinue construction for a period of 18 months or more; or (3) do not complete construction within a reasonable time of the estimated completion date. Extensions of the expiration date may be granted by the APCD upon a showing of good cause by the permittee prior to the expiration date.
7. **YOU MUST notify the APCD at least thirty days (fifteen days for portable sources) prior to commencement of the permitted operation or activity.** Failure to do so is a violation of Section 25-7-114.5(12)(a), C.R.S. and AQCC Regulation No. 3, Part B, Section III.G.1., and can result in the revocation of the permit. ***You must demonstrate compliance with the permit conditions within 180 days after commencement of operation as stated in condition 5.***
8. Section 25-7-114.7(2)(a), C.R.S. requires that all sources required to file an Air Pollution Emission Notice (APEN) must **pay an annual fee** to cover the costs of inspections and administration. If a source or activity is to be discontinued, the owner must notify the Division in writing requesting a cancellation of the permit. Upon notification, annual fee billing will terminate.
9. Violation of the terms of a permit or of the provisions of the Colorado Air Pollution Prevention and control Act or the regulations of the AQCC may result in administrative, civil or criminal enforcement actions under Sections 25-7-115 (enforcement), -121 (injunctions), -122 (civil penalties), -122.1 (criminal penalties), C.R.S.